

preliminary design information and is set by hydraulic requirements. The bridge is higher than existing on the south end and the north end is close to existing. The grade on the existing structure was approx. -0.3%. The grade on our proposed structure is +1.4%.

Bridge No. 38 is located on state Bike Route No. 2 Mountains to Sea. The NCDOT Division of Bicycle and Pedestrian Transportation recommend 4 ft. wide paved shoulders on both sides for shoulder sections or 14 ft. wide outside lanes in curb and gutter sections continued for at least 100 ft. on either side of the approach roadway. Bicycle safe railing height is also recommended. No temporary pedestrian accommodations are needed during construction in the work zone.

B. Alternatives Eliminated from Further Consideration

Alternate 1

Alternate 1 involves replacement of the structure along the existing roadway alignment utilizing an offsite detour during the construction period. Based on the Guidelines, the criteria above indicate that the preference of an offsite detour but with now stronger evaluation of other project variables. In this case, Davidson County Emergency Services has indicated that, the delay is unacceptable. There will be extended travel times for local residents and emergency services if the bridge is closed. NCDOT concurs with this concern and believes that an offsite detour is not justifiable.

C. Other Alternatives Eliminated From Further Consideration

The “do-nothing” alternative will eventually necessitate closure of the bridge. This is not acceptable due to the traffic service provided by SR 1493.

“Rehabilitation” of the old bridge is not practical due to its age and deteriorated condition. Bridge No. 38 has a sixty-three year old timber substructure has a typical life expectancy between 40 to 50 years due to the natural deterioration rate of wood. Rehabilitation of a timber structure is generally practical only when a few members are damaged or prematurely deteriorated.

Staged Construction is not feasible for this bridge because the 20-foot deck width and beam configuration will not support removal of a portion and maintenance of traffic on the remaining portion.

D. Preferred Alternative

Bridge No. 38 will be replaced on a new alignment to the west of the existing shown by Alternative 3 in Figure 2B. This alternate is the preferred alternate because of higher utility costs that Alternate 2 has because of impacts to the de-chlorination plant located east adjacent to the bridge. NCDOT Division 9 concurs with the selection of Alternative 3 as the preferred alternative.